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ABSTRACT

IN THE PAST THERE HAS BEEN SOME QUESTION ABOUT A PUPIL'S RETENTION OF KNOWLEDGE AFTER THE SUMMER RECESS. IN THE INDIVIDUALLY PRESCRIBED INSTRUCTION (IPI) SYSTEM, ONCE A PUPIL BEGINS WORKING THROUGH THE OBJECTIVES, IT SHOULD BE UNNECESSARY TO HAVE HIM TAKE PLACEMENT TESTS EACH FALL. THE PRESENT STUDY EXTRACTED DATA FROM THE PUPILS' PLACEMENT PROFILES FOR THE SPRING AND FALL OF 1968 IN FOUR SCHOOLS FOR 1,231 PUPILS REPRESENTING GRADES 1-5. THESE DATA WERE ANALYZED TO DETERMINE IF THE IPI POLICY REGARDING A FALL PLACEMENT TEST WAS CORRECT. THE RESULTS OF THE STUDY SHOW THAT IT IS UNNECESSARY TO HAVE THE PLACEMENT TEST AGAIN IN THE FALL. DATA TABLES SUPPLEMENT THE REPORT. (JY)

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TEMPORAL RETENTION STUDY

ON

IPI MATHEMATICS

APRIL 1969

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Coordinator of IPI Appraisal

EM007 704

INTRODUCTION

In IPI, one of the major components of the operating system is the testing program which provides a diagnosis of pupil needs and includes placement, pretests, posttests, and curriculum-embedded-tests. Since the purpose of the placement tests is the correct initial placement of a student in the instructional continuum, once a pupil begins working through the objectives, it should be unnecessary to him to take placement tests each Fall. However, in the past, we have questioned the pupils' retention of knowledge after the summer recess and therefore have continued to require the children to take placement tests and review material without the data to support this decision.

One previous study[1] regarding placement retention was conducted at Oakleaf School and has shown that pupils who do not retain units and are required to restudy them progress more slowly than pupils who are allowed to continue on from the place where they stopped before the summer recess. However, the Oakleaf study does not include the data on the number and types of units retained, gained or lost.

The present study has been designed to determine if it is necessary to placement test the pupils at the beginning of each school year. To meet this purpose, the number of units the pupils have gained or lost over the summer has been calculated by area in the continuum and grade level of the pupil. The data used was extracted from the pupils' placement profiles[2] for the Spring and Fall of 1968 in four schools for 1,231 pupils representing grades 1-5[3].

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1. O'Keefe, Kathleen. Use of placement tests in IPI math. Unpublished paper, Learning Research and Development Center, Univ. of Pittsburgh, July 1968.
2. A summary of placement testing results for each pupil.
3. Grade 6 pupils changed from the IPI elementary school to a junior high and therefore were not tested in the Fall.

RESULTS

Methods of Presentation

The mean gains or losses for each unit by grade and across grades may be found in Tables I - VI. For units from which one or more levels were gained or lost, the means have been enclosed in a box for emphasis. Although the same data are available by school by grade, no uniqueness was found for any particular type of student population or grade-school interaction; therefore, since the summary reports are generalizable for all schools, the individual grade-school results are not presented here.

Findings

The amount of retention in each unit shows a counterbalancing of gains and losses so that across all units a stable condition of no difference is found. However, there are certain units which need to be noted for their dominance of gains or losses for particular grades. For example, average gains of one or more levels were found in:

GRADE	UNIT KNOWN IN SPRING
1	0 - Addition*
1	0 - Fractions
2	0 - Numeration
2	0 - Geometry
3	0 - Money
3	0 - Time
3	0 - Place Value
3	A - Fractions
4	0 - Sytems of Measurement
4, 5	C - Addition
5	B - Geometry
5	0 - Combination of Processes

* 0 means that the pupils showed no knowledge in that area.

Average losses of one or more levels were found in:

GRADE	UNIT KNOWN IN SPRING
1	C - Sytems of Measurement
1,2	D - Place Value
1	D - Addition
2	D - Fractions
2	D - Time
2	E - Addition
3	F - Place Value
4	E - Systems of Measurement
4, 5	F - Numeration
4, 5	F - Combination of Processes
4, 5	F - Time
4, 5	G - Place Value
4, 5	G - Subtraction
5	E - Place Value
5	F - Multiplication
5	F - Systems of Measurement
5	G - Addition
5	G - Multiplication

RECOMMENDATIONS

The finds from the study of placement procedures for IPI mathematics lead to the conclusion that it is not necessary to placement test the pupils each September. Instead, the following recommendations can be made:

1. The pupils in September should continue where they stopped in June.
2. Teachers should follow closely the work a child has done in the past relative to his current status. Therefore, if a pupil appears to be bogged down in a unit, a thorough check is made to ascertain if the problem is caused by a loss of prerequisite unit.
3. Knowledge of the units in which the pupils at a grade level have demonstrated a loss of one or more levels during the summer recess is important.
4. The above recommendations are made with reference to the existing continuum. Whenever the objectives or their sequencing is substantially changed, the new placement tests should be administered since students may not have the prerequisites to continue at the same place with a new continuum.

TABLE I

MEAN LEVELS GAINED OR LOST
ALL GRADES

MATHEMATICS AREAS

LEVEL KNOWN IN SPRING	NUM	PV	ADD	SUB	MULT	DIV	COP	FRAC	MON	TIME	SOM	GEOM
NONE	1.1	.5	1.1	.2	.2	.1	.3	1.4	.7	.7	.2	.9
A	.5		.5					.8				
B	0	-.1	.1					.1	.2	0	-.3	.4
C	-.2	0	0	-.2			-.1	- .4	0	-.3	-.2	-.1
D	-.4	-.4	.2	0	-.1	-.2	-.2	- .4	0	-.5	-.4	-.4
E	-.7	-1.0	-.2	0	-.2	-.3	-.4	- .5	0	-.5	-.8	-.7
F	-1.1	-.3	-.5	-.7	-1.0	0	-1.1	- .3	0	-1.2	-1.5	-.2
G	-2.0	-1.1	-.9	-1.6	-1.7		0					

N = 1231

TABLE II

AMOUNT OF RETENTION
GRADE 1
MEAN LEVELS GAINED OR LOST

LEVEL KNOWN IN SPRING	MATHEMATICS AREAS											
	NUM	PV	ADD	SUB	MULT	DIV	COP	FRAC	MON	TIME	SOM	GEOM
NONE	.8	.3	1.4	.1	0	0	.1	1.4	.6	.6	.1	.7
A	.4		.3					.6				
B	-.2	-.3	-.1					-.2	.1	-.2	-.5	.1
C	-.5	-.3	-.2	-.5			-.6	-.7	-.2		-1.2	-.5
D	-.8	-1.4	-1.0									

N = 193

TABLE III

AMOUNT OF RETENTION
GRADE 2
MEAN LEVELS GAINED OR LOST

MATHEMATICS AREAS

LEVEL KNOWN IN SPRING	NUM	PV	ADD	SUB	MULT	DIV	CO	FRAC	MON	TIME	SOM	GEOM
NONE	1.2	.7	.8	.3	0	0	.2	.8	.8	.7	.3	1.1
A	.5		.8					.8				
B	.1	0	.1					-.1	.3	-.1	-.4	.4
C	-.3	-.2	-.2	-.4			-.4	-.8	-.3	-.5	-.5	-.1
D	-.7	-1.0	.3	.5	-.3			-1.0		-1.1		-.3
E			-1.0									

N = 246

TABLE IV

AMOUNT OF RETENTION
GRADE 3
MEAN LEVELS GAINED OR LOST

LEVEL KNOWN IN SPRING	MATHEMATICS AREAS											
	NUM	PV	ADD	SUB	MULT	DIV	COP	FRAC	MON	TIME	SOM	GEOM
NONE		1.2		.4	.1	0	.5		1.6	1.0	.6	.5
A	.7		.7					1.0				
B	.3	.4	.2					.1	.6	0	-.2	.7
C	-.2	-.1	.2	-.3	.1	0	-.3	-.5	.1	-.4	-.4	-.3
D	-.6	-.5	-.1	-.4	-.2	-.4	-.3	-.8	0	-.7	-.4	-.6
E	-.3	-.8	-.4	-.6			-.5			-.6		-.7
F		-1.0	-.1	-.8								

N = 249

TABLE V

AMOUNT OF RETENTION
GRADE 4
MEAN LEVELS GAINED OR LOST

LEVEL KNOWN IN SPRING	MATHEMATICS AREAS											
	NUM	PV	ADD	SUB	MULT	DIV	COP	FRAC	MON	TIME	SOM	GEOM
NONE				.6	.4	.2	.7				[1.3]	
A												
B	.6		.6					.1		.4	.3	.9
C	.2	.3	[1.0]	.1	.4	.2	.2	-.4	.3	-.1	-.1	-.2
D	-.4	-.3	.6	.1	-.2	-.1	-.3	-.4	-.2	-.2	-.4	-.2
E	-.9	[-1.2]	-.4	.3	-.5	-.6	-.3	-.6	-.2	-.8	[-1.1]	-.6
F	[-1.5]	0	-.6	-.9			[-1.4]			[-1.4]		
G		[-1.4]	-.3	[-1.5]								

N = 166

TABLE VI

AMOUNT OF RETENTION
GRADE 5
MEAN LEVELS GAINED OR LOST

LEVEL KNOWN IN SPRING	MATHEMATICS AREAS											
	NUM	PV	ADD	SUB	MULT	DIV	COP	FRAC	MULT	TIME	SOM	GEOM
NONE				.4	.7	.6	1.1					
A												
B	.7						.4		.6	.3	1.0	
C	.4	.6	1.3	.4			.3	0	.4	.2	.2	.4
D	-.2	0	.5	.4	.1	.1	-.1	-.3	.1	-.5	-.1	-.3
E	-.6	-1.0	.1	0	-.1	-.3	-.2	-.5	0	-.4	-.6	-.8
F	-1.0	-.3	-.3	-.6	-1.0	0	-1.0	-.3		-1.0	-1.5	-.2
G		-1.2	-1.0	-1.4	-1.7							

N = 177